General

Guideline Title

Treatment of urinary tract infections in nonpregnant women.

Bibliographic Source(s)

American College of Obstetricians and Gynecologists (ACOG). Treatment of urinary tract infections in nonpregnant women. Washington (DC): American College of Obstetricians and Gynecologists (ACOG); 2008 Mar. 10 p. (ACOG practice bulletin; no. 91). [51 references]

Guideline Status

This is the current release of the guideline.

The American College of Obstetricians and Gynecologists (ACOG) reaffirmed the currency of this guideline in 2012.

Regulatory Alert

FDA Warning/Regulatory Alert

Note from the National Guideline Clearinghouse: This guideline references a drug(s) for which important revised regulatory and/or warning information has been released.

- May 12, 2016 – Fluoroquinolone Antibacterial Drugs : The U.S. Food and Drug Administration (FDA) is advising that the serious side effects associated with fluoroquinolone antibacterial drugs generally outweigh the benefits for patients with sinusitis, bronchitis, and uncomplicated urinary tract infections who have other treatment options. For patients with these conditions, fluoroquinolones should be reserved for those who do not have alternative treatment options.

Recommendations

Major Recommendations

The grades of evidence (I-III) and levels of recommendation (A-C) are defined at the end of the "Major Recommendations" field.

The following recommendations and conclusions are based on good and consistent scientific evidence (Level A):

Screening for and treatment of asymptomatic bacteriuria is not recommended in nonpregnant, premenopausal women.
Resistance rates higher than 15 to 20% necessitate a change in antibiotic class.
In all cases of acute pyelonephritis, whether treatment is on an inpatient or outpatient basis, 14 days of total antimicrobial therapy should be

completed.

A 3-day antimicrobial regimen is the preferred treatment duration for uncomplicated acute bacterial cystitis in women, including women aged 65 years and older.

The following conclusion is based on limited or inconsistent evidence (Level B):

The initial treatment of a symptomatic lower urinary tract infection (UTI) with pyuria or bacteriuria or both does not require a urine culture.

The following conclusions are based primarily on consensus and expert opinion (Level C):

Beta-lactams, such as first-generation cephalosporins and amoxicillin, are less effective in the treatment of acute uncomplicated cystitis than those antimicrobials listed in the Table below.

To diagnose bacteriuria, decreasing the colony count to 1,000 to 10,000 bacteria per milliliter in symptomatic patients will improve the sensitivity without significantly compromising specificity.

Table. Treatment Regimens for Uncomplicated Acute Bacterial Cystitis

Antimicrobial Agent	Dose	Adverse Events
Trimethoprim–sulfamethoxazole	One tablet (160 mg trimethoprim–800 mg sulfamethoxazole), twice daily for 3 days	Fever, rash, photosensitivity, neutropenia, thrombocytopenia, anorexia, nausea and vomiting, pruritus, headache, urticaria, Stevens–Johnson syndrome, and toxic epidermal necrosis
Trimethoprim	100 mg, twice daily for 3 days	Rash, pruritus, photosensitivity, exfoliative dermatitis, Stevens–Johnson syndrome, toxic epidermal necrosis, and aseptic meningitis
Ciprofloxacin	250 mg, twice daily for 3 days	Rash, confusion, seizures, restlessness, headache, severe hypersensitivity, hypoglycemia, hyperglycemia, and Achilles tendon rupture (in patients older than 60 years)
Levofloxacin	250 mg, once daily for 3 days	Same as for ciprofloxacin
Norfloxacin	400 mg, twice daily for 3 days	Same as for ciprofloxacin
Gatifloxacin	200 mg, once daily for 3 days	Same as for ciprofloxacin
Nitrofurantoin macrocrystals	50 to 100 mg, four times daily for 7 days	Anorexia, nausea, vomiting, hypersensitivity, peripheral neuropathy, hepatitis, hemolytic anemia, and pulmonary reactions
Nitrofurantoin monohydrate crystals	100 mg, twice daily for 7 days	Same as for nitrofurantoin macrocrystals
Fosfomycin tromethamine	3 g dose (powder) single dose	Diarrhea, nausea, vomiting, rash, and hypersensitivity

Definitions:

Grades of Evidence

I Evidence obtained from at least one properly designed randomized controlled trial.

II-1 Evidence obtained from well-designed controlled trials without randomization.

II-2 Evidence obtained from well-designed cohort or case–control analytic studies, preferably from more than one center or research group.

II-3 Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments also could be regarded as this type of evidence.

III Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees.

Levels of Recommendation

Level A — Recommendations are based on good and consistent scientific evidence.

Level B — Recommendations are based on limited or inconsistent scientific evidence.

Level C — Recommendations are based primarily on consensus and expert opinion.

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Urinary tract infections

- Acute bacterial cystitis
- Acute pyelonephritis

Guideline Category

Diagnosis

Evaluation

Management

Prevention

Risk Assessment

Screening

Treatment

Clinical Specialty

Family Practice

Internal Medicine

Obstetrics and Gynecology

Urology

Intended Users

Physicians

Guideline Objective(s)

- To aid practitioners in making decisions about appropriate obstetric and gynecologic care
- To address the diagnosis, treatment, and prevention of uncomplicated acute bacterial cystitis and acute bacterial pyelonephritis in nonpregnant women

Target Population

Nonpregnant women with uncomplicated urinary tract infections (UTIs)

Note: Women with complicated UTIs (e.g., in patients with diabetes mellitus, abnormal anatomy, prior urologic surgery, a history of renal stones, an indwelling catheter, spinal cord injury, immunocompromise, or in pregnant patients) are a heterogeneous group of conditions beyond the scope of this guideline.

Interventions and Practices Considered

Evaluation and Diagnosis

- Differential diagnosis: acute bacterial cystitis versus acute pyelonephritis
  - Clinical history and physical examination
  - Laboratory evaluation of bacteriuria and pyuria
    - Urine dipstick testing
    - Urine culture or urinalysis
- Risk factor assessment for urinary tract infection (UTI) in premenopausal and postmenopausal women
- Risk factor assessment for recurrent UTI
- Imaging of the urinary tract (not recommended routinely for uncomplicated UTIs)
- Screening for asymptomatic bacteriuria in nonpregnant, premenopausal women (considered but specifically not recommended)

Treatment and Management

- Antimicrobial regimens for uncomplicated UTIs (3-day vs. 7-day)
  - Trimethoprim-sulfamethoxazole
  - Trimethoprim
  - Ciprofloxacin
  - Levofloxacin
  - Norfloxacin
  - Gatifloxacin
  - Nitrofurantoin macrocrystals and nitrofurantoin monohydrate macrocrystals
  - Fosfomycin tromethamine
- Use of 14-day antimicrobial regimens for acute pyelonephritis
- Management of recurrent UTI
  - Prophylactic or intermittent antimicrobial therapy
  - Cranberry juice
  - Methenamine salts (not sufficient evidence for use)
- Treatment of UTIs in postmenopausal women

Major Outcomes Considered

- Incidence of acute bacterial cystitis
- Incidence of acute pyelonephritis
- Incidence of recurrent urinary tract infections
- Effectiveness of antimicrobial therapy (clinical response and bacterial eradication rates)
- Sensitivity and specificity of diagnostic tests
- Adverse effects of treatment

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

2008 Original Guideline

The MEDLINE database, the Cochrane Library, and the American College of Obstetricians and Gynecologists' own internal resources and documents were used to conduct a literature search to locate relevant articles published between January 1985 and April 2007. The search was restricted to articles published in the English language. Priority was given to articles reporting results of original research, although review articles and commentaries also were consulted. Abstracts of research presented at symposia and scientific conferences were not considered adequate for inclusion in this document. Guidelines published by organizations or institutions such as the National Institutes of Health and the American College of Obstetricians and Gynecologists were reviewed, and additional studies were located by reviewing bibliographies of identified articles.

2012 Reaffirmation

The NCBI database was searched from 2008 to 2012. Committee members conducted a literature search with the assistance from the ACOG Resource Center staff who routinely perform the Practice Bulletin literature searches.

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Studies were reviewed and evaluated for quality according to the method outlined by the U.S. Preventive Services Task Force:

I Evidence obtained from at least one properly designed randomized controlled trial.

II-1 Evidence obtained from well-designed controlled trials without randomization.

II-2 Evidence obtained from well-designed cohort or case–control analytic studies, preferably from more than one center or research group.

II-3 Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments also could be regarded as this type of evidence.

III Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees.

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review

Description of the Methods Used to Analyze the Evidence

Not stated

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

2008 Original Guideline

Analysis of available evidence was given priority in formulating recommendations. When reliable research was not available, expert opinions from obstetrician–gynecologists were used. See also the "Rating Scheme for the Strength of Recommendations" field regarding Grade C recommendations.

2012 Reaffirmation

The Committee on Practice Bulletins - Gynecology met in March 2012 and reaffirmed this document. A committee member reviewed the document and new literature on the topic. The document was then reviewed by the committee and the committee agreed that it is current and accurate.

Rating Scheme for the Strength of the Recommendations

Based on the highest level of evidence found in the data, recommendations are provided and graded according to the following categories:

Level A — Recommendations are based on good and consistent scientific evidence.

Level B — Recommendations are based on limited or inconsistent scientific evidence.

Level C — Recommendations are based primarily on consensus and expert opinion.

Cost Analysis

Published cost analyses were reviewed.

Method of Guideline Validation

Internal Peer Review

Description of Method of Guideline Validation

Practice Bulletins are validated by two internal clinical review panels composed of practicing obstetrician-gynecologists generalists and sub-specialists. The final guidelines are also reviewed and approved by the American College of Obstetricians and Gynecologists (ACOG) Executive Board.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Potential Benefits

Accurate diagnosis and appropriate management of urinary tract infections in nonpregnant women

Potential Harms

Adverse events associated with antimicrobial treatment regimens (see Table 1 in the original guideline document).

Qualifying Statements

Qualifying Statements

These guidelines should not be construed as dictating an exclusive course of treatment or procedure. Variations in practice may be warranted based on the needs of the individual patient, resources, and limitations unique to the institution or type of practice.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Audit Criteria/Indicators

Foreign Language Translations

Patient Resources

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

Staying Healthy

IOM Domain

Effectiveness

Identifying Information and Availability

Bibliographic Source(s)

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Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2008 Mar (reaffirmed 2012)

Guideline Developer(s)

American College of Obstetricians and Gynecologists - Medical Specialty Society

Source(s) of Funding

American College of Obstetricians and Gynecologists (ACOG)

Guideline Committee

American College of Obstetricians and Gynecologists (ACOG) Committee on Practice Bulletins - Gynecology

Composition of Group That Authored the Guideline

Not stated

Financial Disclosures/Conflicts of Interest

Not stated

Guideline Status

This is the current release of the guideline.

The American College of Obstetricians and Gynecologists (ACOG) reaffirmed the currency of this guideline in 2012.

Guideline Availability

Electronic copies: None available

Print copies: Available for purchase from the American College of Obstetricians and Gynecologists (ACOG) Distribution Center, PO Box 933104, Atlanta, GA 31193-3104; telephone, 800-762-2264, ext. 192; e-mail: sales@acog.org. The ACOG Bookstore is available online at the ACOG Web site.

Availability of Companion Documents

Proposed performance measures are included in the original guideline document.

Patient Resources

The following is available:

- Urinary tract infections. Atlanta (GA): American College of Obstetricians and Gynecologists (ACOG); 2006.

Electronic copies: Available from the American College of Obstetricians and Gynecologists (ACOG) Web site . Copies are also available in Spanish.

Print copies: Available for purchase from the American College of Obstetricians and Gynecologists (ACOG) Distribution Center, PO Box 933104, Atlanta, GA 31193-3104; telephone, 800-762-2264, ext. 192; e-mail: sales@acog.org. The ACOG Bookstore is available online at the ACOG Web site .

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NGC Status

This NGC summary was completed by ECRI Institute on July 30, 2008. The information was verified by the guideline developer on August 20, 2008. This summary was updated by ECRI Institute on October 25, 2013 following the U.S. Food and Drug Administration advisory on Fluoroquinolone Antibacterial Drugs. The currency of the guideline was reaffirmed by the developer in 2012 and this summary was updated by ECRI Institute on March 7, 2014. This summary was updated by ECRI Institute on May 18, 2016 following the U.S. Food and Drug Administration advisory on Fluoroquinolone Antibacterial Drugs.

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